



TITLE: Early Diagnosis in Children with Cerebral Palsy: Clinical Evidence and Guidelines

DATE: 25 January 2017

RESEARCH QUESTIONS

1. What is the clinical evidence regarding early diagnosis in children with cerebral palsy?
2. What are the evidence-based guidelines regarding early diagnosis in children with cerebral palsy?

KEY FINDINGS

Four non-randomized studies were identified regarding early diagnosis in children with cerebral palsy.

METHODS

A limited literature search was conducted on key resources including PubMed, Medline, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. Methodological filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, and guidelines, randomized controlled trials, and non-randomized studies. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1 2012, and January 10, 2017. Internet links were provided, where available.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

SELECTION CRITERIA

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

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Table 1: Selection Criteria

Population	Children with cerebral palsy
Intervention	Methods of diagnosis (screening, assessment, etc.)
Comparator	Other methods of diagnosis
Outcomes	Clinical evidence, diagnostic accuracy, guidelines
Study Designs	Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines

RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

Four non-randomized studies were identified regarding early diagnosis in children with cerebral palsy. No relevant health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, or evidence-based guidelines were identified.

Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

The accuracy of methods of early cerebral palsy (CP) diagnosis was assessed in four non-randomized studies.¹⁻⁴ Two studies^{1,2} examined the sensitivity and specificity of the General Movements Assessment (GMA) for determining the diagnostic accuracy of early CP diagnosis. Screening of high risk infants with the GMA was done during the “fidgety period” (12 to 20 weeks of age) and the infants were reassessed at one year of age.¹ The authors determined that the GMA had a sensitivity of 98% and a specificity of 94% for the detection of CP.¹ In the second study,² high risk infants were assessed with the GMA at three months of age and were clinically assessed for CP at two years of age. In this study, the sensitivity of the GMA was reported to be 90% and the specificity was 90%.²

One study³ used a variety of scales to assess the mental and motor development of high risk infants in the neonatal intensive care unit. The authors reported that a decrease in Developmental Assessment of Young Children scores between six and 12 months was observed in infants who with CP but not in infants determined not to have CP.³ The fourth identified study⁴ assessed the predictive value of early assessments for extremely pre-term infants but the authors did not report the results associated with any specific scale within the abstract.

No information was identified regarding the benefits or harms of early diagnosis of CP. No evidence-based guidelines were identified regarding the early diagnosis of CP.

REFERENCES SUMMARIZED

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

1. Morgan C, Crowle C, Goyen TA, Hardman C, Jackman M, Novak I, et al. Sensitivity and specificity of General Movements Assessment for diagnostic accuracy of detecting cerebral palsy early in an Australian context. *J Paediatr Child Health*. 2016 Jan;52(1):54-9.
[PubMed: PM26289780](#)
2. Oberg GK, Jacobsen BK, Jorgensen L. Predictive value of General Movement Assessment for cerebral palsy in routine clinical practice. *Phys Ther*. 2015 Nov;95(11):1489-95.
[PubMed: PM26023214](#)
3. Maitre NL, Slaughter JC, Aschner JL. Early prediction of cerebral palsy after neonatal intensive care using motor development trajectories in infancy. *Early Hum Dev*. 2013 Oct;89(10):781-6.
[PubMed: PM23856349](#)
4. Leversen KT, Sommerfelt K, Elgen IB, Eide GE, Irgens LM, Juliusson PB, et al. Prediction of outcome at 5 years from assessments at 2 years among extremely preterm children: A Norwegian national cohort study. *Acta Paediatr*. 2012 Mar;101(3):264-70.
[PubMed: PM22026562](#)

Guidelines and Recommendations

No literature identified.

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APPENDIX – FURTHER INFORMATION:

Non-Randomized Studies – Predictors of Early Diagnosis

5. Granild-Jensen JB, Rackauskaite G, Flachs EM, Uldall P. Predictors for early diagnosis of cerebral palsy from national registry data. *Dev Med Child Neurol*. 2015 Oct;57(10):931-5.
[PubMed: PM25855100](#)

Review Articles

6. Herskind A, Greisen G, Nielsen JB. Early identification and intervention in cerebral palsy. *Dev Med Child Neurol*. 2015 Jan;57(1):29-36.
[PubMed: PM25041565](#)
7. Hadders-Algra M. Early diagnosis and early intervention in cerebral palsy. *Front Neurol*. 2014;5:185. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4173665>
[PubMed: PM25309506](#)
8. Lee RW, Poretti A, Cohen JS, Levey E, Gwynn H, Johnston MV, et al. A diagnostic approach for cerebral palsy in the genomic era. *Neuromolecular Med*. 2014 Dec;16(4):821-44.
[PubMed: PM25280894](#)